

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Linear and nonlinear guided ultrasonic waves to characterize cladding of accident tolerant fuel – Georgia Institute of Technology

SECTION B. Project Description

The Georgia Institute of Technology (GIT) proposes to investigate extension of use of non-destructive evaluation (NDE) techniques to coated accident tolerant fuel (ATF). The expanded NDE would need to be able to verify the thickness and uniformity of the fuel coating layers, identify any areas of missing coating layers, and confirm the quality of the coating-substrate bond in addition to evaluating the condition of the fuel element itself. GIT proposes to use a combination of linear and nonlinear guided ultrasonic waves, integrated with material behavior models to develop a reliable NDE approach for quality control and quality assurance (QC/QA) of the cladding thickness, uniformity, and bond strength.

SECTION C. Environmental Aspects / Potential Sources of Impact

The university has procedures in place to handle any waste that will be generated through this project. The action would not create additional environmental impacts above those already occurring at the university.

SECTION D. Determine the Level of Environmental Review (or Documentation) and Reference(s): Identify the applicable categorical exclusion from 10 CFR 1021, Appendix B, give the appropriate justification, and the approval date.

Note: For Categorical Exclusions (CXs) the proposed action must not: 1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, including requirements of DOE orders; 2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities; 3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; 4) adversely affect environmentally sensitive resources. In addition, no extraordinary circumstances related to the proposal exist which would affect the significance of the action, and the action is not “connected” nor “related” (40 CFR 1508.25(a)(1) and (2), respectively) to other actions with potentially or cumulatively significant impacts.

References: B3.6 Siting, construction, modification, operation, and decommissioning of facilities for small-scale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial development.

Justification: The activity consists of an investigation to develop NDE techniques for clad ATF.

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act) Yes No

Approved by Jason Sturm, DOE-ID NEPA Compliance Officer on 7/30/2020